

# Digital Single-Day Max/Min Thermometer Soil Sensor Error Check Field Guide

## Task

Check the accuracy of the soil sensor to see whether or not it needs to be dug out and recalibrated.

## What You Need

☐ Soil probe thermometer from *Soil Temperature Protocol*.

☐ *Digital Max/Min Thermometer Calibration Data Sheet*

## In the Field

1. Calibrate a soil probe thermometer following the *Calibrating the Soil Thermometer Lab Guide of the Soil Temperature Protocol*.
2. Open the door to the instrument shelter.
3. Select a place about 15 cm from the location of the soil temperature probe.
4. Measure the soil temperature at a depth of 10 cm at this spot following the *Soil Temperature Protocol*.
5. Record this temperature in the 'Soil Sensor Error Check' section of your *Digital Max/Min Thermometer Calibration and Reset Data Sheet*.
6. Make sure that your digital thermometer is displaying the current temperature(s) (Neither 'MAX' or 'MIN' symbols should be displayed on the screen. If they are, press the MAX/MIN button until they disappear).
7. Read the temperature reported by the soil sensor of the digital thermometer and record it on your *Data Sheet*.
8. Close the door of the instrument shelter.
9. Repeat steps 2 to 8 four more times, waiting one hour between measurements.
10. Calculate the average of the soil thermometer readings.
11. Calculate the average of the digital soil sensor readings.
12. Calculate the soil sensor error by subtracting the average of the five digital soil sensor readings (from step 10) from the average of the five soil sensor readings (from step 11)
13. If the absolute value of the soil sensor error is greater than or equal to two  $^{\circ}\text{C}$ , then dig-out this sensor and recalibrate both the air and soil sensors following the *Digital Single-Day Max/Min Thermometer Sensor Calibration*. Otherwise leave the digital soil sensor in the ground and recalibrate only the air sensor.